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Name Arie Jan Haagen-Smit Academic position or title Professor of  
Bio-Organic Chemistry

Address California Institute of Technology  
Pasadena, California, U.S.A.

Name Academic position or title

Address

Name Academic position or title

Address

The nomination concerns the discovery of the chemical composition of "smog" and its production by photochemical reactions of automotive exhausts.

Summary of the description of the discovery qualifying for the award

Prior to Haagen-Smit's work, smog was confused with industrial smoke, and was not regarded as posing any problems of profound scientific interest either from the standpoint of its production, nor of the manifold pathways of biochemical and pathological impact on the urban population..

In 1952, Haagen-Smit pointed to unburned hydrocarbons emitted from auto exhausts as the principal source of Los Angeles smog. These hydrocarbons undergo complex photochemical reactions catalyzed by nitrogen oxides which result in the formation of ozone and of highly reactive peroxyacyl nitrites (PAN) which in turn accounts for much of the pathological effects of smog on the population and on agriculture.

Apart from its own significance in analyzing a specific problem, this work has opened the door to a new era of scientific scrutiny of the potential hazards and mechanisms of environmental deterioration, and an appreciation of its importance to human health and well-being.

An award to Haagen-Smit, besides being completely justified in terms of the scientific acuity and precision of his work, would then also display one of the finest examples of the relevance of the methods of science to the mastery of contemporary problems of global importance.

Name of nominator: Joshua Lederberg

Academic position or title: Professor of  
Genetics

Address: Department of Genetics/ Stanford University  
Stanford, California 94305 U.S.A.

Signature of Nominator:

Date:

JAN 20 1970